protein encoded by these sequences differ in structure and in function and in biological activity. The Examiner further alleges that where the nucleic acid changes have no effect on protein structure or function, the sequences themselves represent allelic variations which have different diagnostic and therapeutic implications.

In response, applicants hereby elect, with traverse, mutation 2119 T->C. For those claims which require two or more mutations, applicants hereby elect, with traverse, mutation 2119 T->C in combination with at least one other mutation from Table 4.

Applicants, however, respectfully request that the Examiner reconsider and withdraw the restriction requirement. Under 35 U.S.C. §121, restriction may be required if two or more independent and distinct inventions are claimed in one application.

The Examiner alleged that each marker/sequence is patentably distinct because they are unrelated sequences and that the sequences themselves represent allelic variations which have different diagnostic and therapeutic implications. Applicants contend that this is not correct, since the claims are all directed to detecting single mutations in the same gene for the same disease. Applicants therefore maintain that the pending claims constitute a single invention.

SUMMARY

In view of the foregoing, applicants maintain that the August 30 restriction requirement is not proper under 35 U.S.C. § 121 and respectfully request that the Examiner reconsider and withdraw the requirement.

If a telephone interview would be of assistance in advancing prosecution of the subject application, applicants' undersigned attorney invites the Examiner to telephone him at the number provided below.

No fee, other than the $568.00 fee which includes the $460.00 fee for a three month extension of time and the $108.00 fee for 12 additional dependent claims, is deemed necessary in connection with the filing of this Response. However, if any fee is required, authorization is hereby given to charge the amount of any such fee to Deposit Account No. 03-3125.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited this date with the U.S. Postal Service with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231

12/30/02

John P. White Date
Reg. No. 28,678

Marked-up Version of Amended Claims

The terms in square brackets have been removed, and the terms underlined have been added.

1. (Amended) A method of testing a subject to determine if the subject has a predisposition for developing breast cancer which comprises [the steps of: (a)] detecting a mutation in the open reading frame of the ATM gene (SEQ ID NO: 1) in a cDNA sample prepared from a mRNA sample or a genomic DNA sample from the subject[,]; which mutation is selected from the group consisting of the mutations set forth in Table 4 [and Table 5; or (b) detecting a mutation in the open reading frame of the ATM gene (SEQ ID NO: 1) in a genomic DNA sample from the subject, which mutation is selected from the group consisting of the mutations set forth in Table 4 and Table 5,] and wherein the presence of such mutation indicates that the subject has a predisposition for developing breast cancer.

2. (Amended) The method according to claim 1, wherein said detecting step includes detecting DNA characterized by including at least one mutation selected from the group consisting of the following mutations [in] ; position 3161 C->G[,]; position 2572 T->C[,]; position 6235 G->A[,]; position 3118 A->G[,]; position 378 T->A[,]; position 2614 C->T; position 146 C->G[,]; and position 1636 C->G.

3. (Amended) The method according to claim 1, wherein said detecting step includes detecting DNA characterized by including at least two mutations selected from the group

consisting of the following [a} double mutations: [in] positions 3161 [(]C->G[)] and [position] 2572 [(]T->C[)]; and [a double mutation in] positions 6235 [(]G->A[)] and [position] 378 [(]T->A[)].

4. (Amended) A method of testing a subject, who has already developed primary breast cancer, to determine if the subject has a predisposition to develop bilateral breast cancer which comprises [(a)] detecting a mutation in the open reading frame of the ATM gene (SEQ ID NO: 1) in a cDNA sample prepared from a mRNA sample, or in a genomic DNA sample, from the subject [a mutation,]; which mutation is selected from the group consisting of the mutations set forth in Table 4 [and Table 5; or (b) detecting a mutation in the open reading frame of the ATM gene (SEQ ID NO: 1) in a genomic DNA sample from the subject, which mutation is selected from the group consisting of the mutations set forth in Table 4 and Table 5,] and wherein the presence of such mutation indicates that the subject has a predisposition to develop bilateral breast cancer.

5. (Amended) The method according to claim 4, wherein said detecting step includes detecting DNA characterized by including at least one mutation selected from the group [selected from the group] consisting [essentially] of the following mutations: [in] position 3161 C->G[,]; position 2572 T->C[,]; position 6235 G->A[,]; position 3118 A->G[,]; position 378 T->A[,]; position 2614 C->T[,]; position 146 C->G[,]; and position 1636 C->G.

6. (Amended) The method according to claim 4, wherein said detecting step includes detecting DNA characterized by including at least two mutations selected from the group consisting of the following double mutations: [in] positions 3161 [(]C->G[)] and [position] 2572 [(]T->C[)]; and [double mutation in] positions 6235 [(]G->A[)] and [position] 378 [(]T->A[)].

7. (Amended) An isolated cDNA comprising consecutive nucleotides having a nucleotide sequence which differs from the sequence set forth in SEQ.ID.NO: 1 by a mutation selected from the group consisting of the following mutations: [in] position 378 T->A[,]; position 3383 A->G[,]; position 1636 C->G[,]; position 2614 C->T[,]; position 6437 G->C[,]; position 2932 T->C[,]; position 2289 T->A[,]; position 6096 A->T[,]; position 6176 C->T[,]; position 6919 C->T[,]; position 2442 C->A[,]; position 3925 G->A[,]; position 6067 G->A[,]; position 2119 T->C[,]; position 1810 C->T[,]; and position 4388 T->G.

8. (Amended) A marker for determining a predisposition for breast cancer, wherein said marker includes a mutation in the open reading frame of the ATM gene (SEQ ID NO: 1), which mutation results in a change in the amino acid sequence encoded thereby.

9. (Amended) The marker according to claim 8, wherein said mutation is selected from the group consisting of the mutations set forth in Table 4 [and Table 5].

10. (Amended) The marker according to claim 9, wherein said mutation is selected from the group consisting of the following mutations: [in] position 378 T->A[,]; position 3383 A->G[,]; position 1636 C->G[,]; position 2614 C->T[,]; position 6437 G->C[,]; position 2932 T->C[,]; position 2289 T->A[,]; position 6096 A->T[,]; position 6176 C->T[,]; position 6919 C->T[,]; position 3925 G->A[,]; position 6067 G->A[,]; position 2119 T->C[,]; position 1810 C->T[,]; and position 4388 T->G.